

## Orongo Ceremonial Center: Past, Present and Future

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Since early in the 20th century and until the present, reports on the condition of the houses of Easter Island's ceremonial center, Orongo, have varied from "ruins" to Mulloy's "fine restoration." This paper brings together comments by earlier researchers and reports on the problems facing this site today.

Nearly all of the stone houses at Orongo now are closed as they are unstable and unsafe for visitor access. Unless action is taken, their condition will only worsen, and Mulloy's major contribution to the archaeology of Easter Island will have gone full circle and again fall into ruins.

The ceremonial center of Orongo is located at the southwest corner of the island, on the narrow edge of the caldera of Rano Kau—one of the three volcanoes that are the points of the 164 sq km triangular island. The houses at Orongo consist of mostly contiguous, small, one-room, low stone houses that resemble man-made caves. The last birdman ceremonies were held here in 1866 or 1867 (Mulloy 1975:v).

The houses are constructed of slabs of dense fine-grained non-vesicular basalt (*keho*). In general the houses are elliptically-shaped and formed by two concentric, dry laid stone walls; the space between the houses ranges upward to 2 meters and is filled with earth and rubble. According to Ferdon (1965:233) the sizes of the rooms vary from 2.25 to 15.5 meters with a height from 1 to 2 meters, and width from 1.35 to 2.6 meters. The entrance is a tunnel-like crawlway at

ground level and it provides the only light and ventilation. Cantilevered horizontally-placed slabs support the large stone ceiling slabs while cribbed stonework supports the narrow ends of the rooms. Many houses have one or more large vertical stone slabs which form part of the interior wall opposite the entrances. Some are decorated with paintings or carvings. A thick mound of grass-covered earth and rubble forms the roof and provides the counter-weight for the cantilevered roof. (Figure 1).

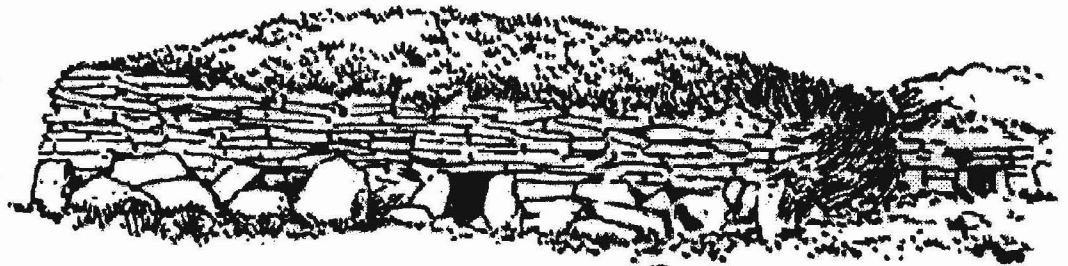


Figure 1: General view of the houses as seen by Thomson in 1888.

Mulloy (1975:6) noted a difference between his estimated height of the original walls and those suggested by Routledge and Ferdon: "They considered them to have been frequently absent and otherwise usually low, resulting in exteriors tending to appear as earth mounds. Their inferences were reasonable in terms of the surface observations they had opportunity to make and were shared by the writer until much excavated evidence to the contrary began to appear." And, "All the houses investigated revealed evidence of front, exterior walls and almost all had rear walls where terrain slope did not make them unnecessary. The only places where the mounded earth technique was observed were the rear walls of Houses 14-15 and 17-18. These appear to represent some sort of special situation....The height of exterior walls was determined sometimes by extant, assembled remains and sometimes by rebuilding with the obviously original displaced slabs recovered adjacent to the wall. In some cases height was determined by the requirements of the statics of the structure, the wall being raised to the height necessary to retain sufficient counterweight to support the cantilevering. The writer believes that, while some exterior walls may have been restored to heights slightly less than the originals, none have been restored higher."

In Routledge's (1920:430) detailed

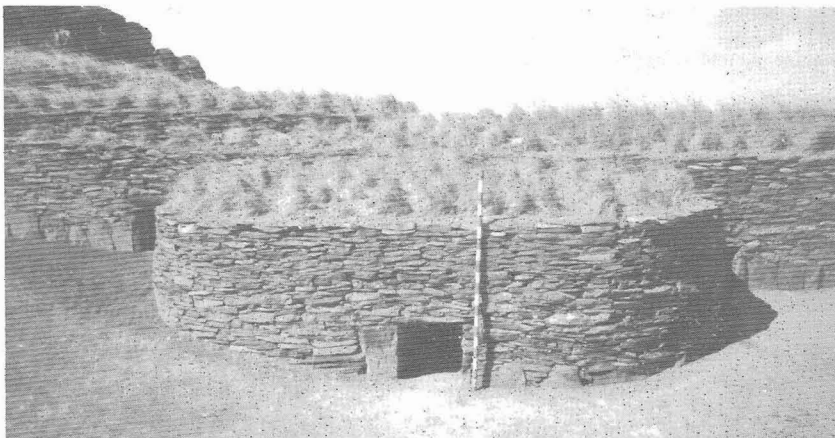


Figure 2. Photograph showing one of the houses at Orongo at the time of excavation by Mulloy. (Photo courtesy Emily Ross Mulloy)

description of Orongo's houses, she does not specifically mention the height of walls. However, she does say that

obtain painted or incised stone slabs from their interiors. Perhaps one of the most important examples is the demolition of the structure that housed the fine basalt stone statue known as Hoa-Haka-Nana-Ia. Bas relief carvings on its back include two birdmen; several fertility symbols (*komari*); dance paddles; a sooty tern; and a circle with curved lines, resembling a rainbow or crescent. These inverted crescents probably signified the sacred loincloth worn by chiefs, although Routledge (1919:220) suggested they represented a tattoo. Beneath this is a Y or M motif which somewhat resembles a stylized frigate bird. Van Tilburg (1992:55-6) also notes a similarity in this design with hafted adzes and tattoo chisels, a Samoan tattoo motif, forked sticks used in Mangarevan fertility rites, or an abstracted human form in a position of supplication, etc.

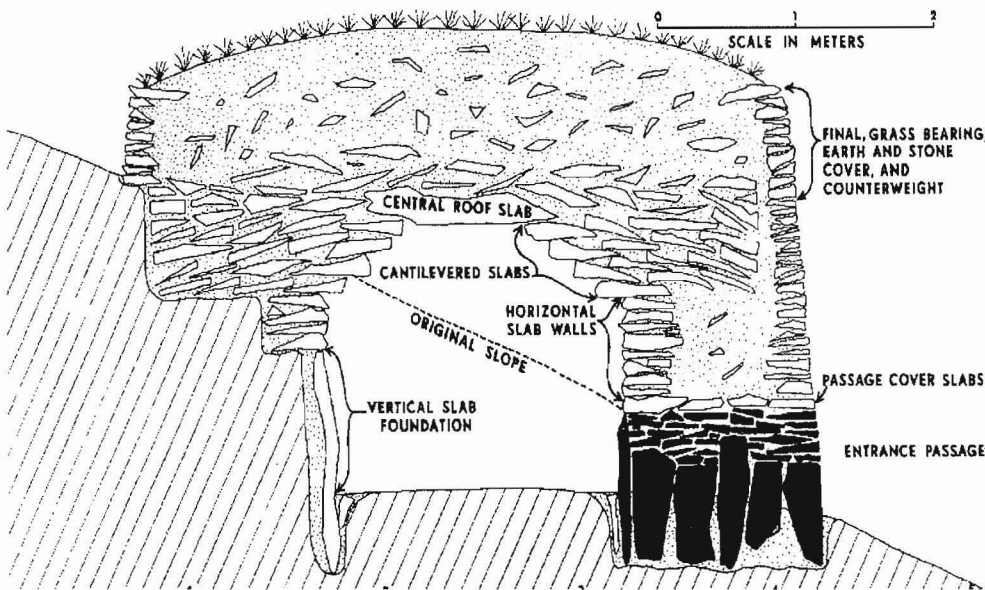


Figure 3: Construction of a typical house. (from Mulloy, Bulletin 4, Easter Island Committee, International Fund for Monuments, 1974)

heights are usually five feet. Extrapolating from that, walls would have to have been at least as high as the ceiling. This does not include the two feet of earth and rubble on the top.

The exterior wall heights listed below are estimated from stadia rods shown leaning against walls in photographs. (Fig. 2) The walls range in height from 1.4 m to 2.6 m.

House:	
#1:	2.6 m
#14-15:	1.6 m
#16:	1.8 m
#19:	1.5 m
#20:	1.4 m
#21,22,23:	1.7 m
#26:	1.8 m

During the century of abandonment, the Orongo houses collapsed into ruins. Mulloy restored 36 houses in 1974 and reported the results in his 1975 *Investigation and Restoration of the Ceremonial Center of Orongo, Part one*. Part Two, which was intended to be a report on 15 more houses restored in 1976 was not written due to Mulloy's untimely death in 1978.

Mulloy (1975: iv) comments on the dating of the Orongo site: "The earliest presently available C14 date (k-520) of A.D. 1410 plus or minus 100 years probably does not need correction....It came from the lowest culture bearing stratum in a trench penetrating extensive midden deposit and located about five meters northwest of the north end of House No. 27....At present it appears likely that this locality is close to the earliest part of the house complex."

The wanton destruction of Orongo's houses by visitors is best exemplified by those who destroyed them in order to

its shoulders with its back to the house opening, is now in the British Museum. It was removed from the island by the HMS *Topaz* in 1868; it took 300 crew members and 200 islanders to move the four ton statue down the northern slope of Rano Kau so it could be loaded onto the *Topaze*, anchored in Cook's Bay. Originally it had red and white pigment on it but this disappeared during the voyage to England (Drake 1992:15-16).

Thomson (1891:480; plate XIX) remarks on the house destruction by crew members of the USS *Mohican*: "Houses marked 1, 5 and 6 on Lieutenant Symond's chart were demolished at the expense of great labor and the frescoed slabs obtained." Plate XIX shows a house with part of the side and roof removed, exposing two large painted stone slabs. One design represents a sooty tern with a short beak; the other has a sooty tern body with a long beak of a frigate bird. In addition to the vandalism inflicted by Thomson and others, Mulloy (1975: v) notes the following destruction: removal of ceiling slabs to provide light for photography, damage to roofs by sheep, cattle and horses, fig trees whose roots dislodge house foundations, and soil erosion severe enough to undermine foundations.

After Orongo was abandoned, the houses themselves were 'quarried' for basalt slabs taken to the village for building materials, first by ox-cart and then later by truck. Because the type of architecture involved in the construction of the Orongo houses depends upon counterweighting, removal of *keho* resulted in further collapsing of walls and roofs. In 1947 Father Sebastian Englert made an inventory of the houses and also did "extensive restoration" in the area of Houses 1-13 and made repairs on 14 others that are unidentified (Mulloy 1975:iv). In the light of all these alterations and destructive

acts which took place for over 100 years, it is remarkable that Mulloy was able to reconstruct the site.

According to Mulloy, to restore the Orongo houses it was necessary to rebuild not only the walls that had slumped due to outward tilting of the partially embedded vertical foundation stones but also those walls where the foundation stones had begun to tilt. If not vertical, the great weight of the stone wall and earth forced them outward, thus causing the walls to collapse. In turn, any slumping of an interior wall caused the ceiling to collapse. The major cause of the collapse of the walls and roofs of the houses was the outward tilting of the vertical foundation stone slabs. (Fig. 3)

In order to accomplish a thorough restoration, Mulloy reconstructed not only the collapsed walls but those standing walls whose foundation stones had begun to tilt. This is the reason for the considerable difference between the condition of the houses as reported by Routledge and Ferdon, and Mulloy's restoration.

Why the islanders used such an obviously unstable type of foundation remains an enigma, particularly in comparison to the engineering skills of the complicated cantilevered ceilings. There are, however, a few examples where sections of vertical slab foundation stones have been replaced by irregularly shaped ones. These may have been more stable shapes.

Katherine Routledge (1920) reported on the condition of the houses at Orongo; Edwin Ferdon (1961) noted their condition during his six months on the island in 1955-56; and Mulloy (1975) relates the details of his six month restoration project of 32 houses. Routledge's comments about the condition of the houses in 1914-15 are compared here with those of Mulloy in 1974. In the composite house numbering series, i.e., #19 (26) the initial numbers #19 are Mulloy's and those in parentheses (26) are from Routledge. The difference between them demonstrates the erosional effects of 60 years of battering by gale force winds and torrential rains, plus animal and human impacts.

Perched on the eastern end of the narrow strip that contains the site of Orongo are seven houses, numbered 2 to 8. These are contiguous and form a crescent line facing the sea. A depressed area of boulders forms a court-like area in front of the house openings. This was the most sacred precinct at Orongo: Mata Ngarau. It is here where we see the largest concentration of petroglyphs on the island. The entryways to these seven houses, which are actually more like small rooms divided by stone slabs, are only about four meters back from the edge of the precipice, a stunning 300 meters above the ocean. It is clear that the site was sacred before the houses were constructed for some petroglyph boulders are covered by masonry and overburden.

Mulloy's (1975:v) observation of house damage extended also to the petroglyphs at Mata Ngarau: "Significant damage has been done to the spectacular bas-relief petroglyph groups, especially [*sic*] in the complex at the southeast end of the center, through the practice of walking on them with shod feet."

## Condition of Houses: Mulloy and Routledge

*House #1 (45):* Restoration included replacement of cantilevered elements, central slabs, reconstruction of exterior walls and filling the roof to a convex surface. Routledge: house condition "fair."

*House #2 (44):* Roof lacked several central slabs. Routledge: House condition "perfect".

*House #3 (43):* Front exterior well destroyed. Routledge: "north wall broken down, roof off."

*House #4 (42):* Front exterior well destroyed and roof lacked several slabs. Routledge: "entrance and part of north wall broken down."

*House #5:* Front exterior wall destroyed, roof lacked several central slabs [Routledge did not record this house].

*House #6 (41):* Front exterior wall destroyed. Routledge: house condition "good". "Entrances: two, divided by a row of panels which continue into the house." [Note: one of these entrances is the non-recorded house #5].

*House #7:* Front exterior wall destroyed. House lacked both central and cantilevered elements. [Routledge did not record this house].

*House #8 (40):* Front exterior wall destroyed. House lacked both central and cantilevered elements. Routledge: House condition "good". "Entrances: two divided by a row of panels which continue into the house." [Note: one of these entrances is the non-recorded Mulloy house #7].

*House #9 (39):* Replacement of two ceiling slabs. Routledge: "Middle of north wall, roof and entrance broken down."

*House #10 (38):* Replacement of one ceiling slab. Routledge: "Hole in roof, otherwise good."

*House #11 (37):* No restoration required. Routledge: "Good".

*House #12 (36):* No restoration required. Routledge: "Exterior entrance broken down; can be entered by hole in south wall."

*House #13 (35):* Exterior wall, entrance and rear interior wall rebuilt. Routledge: "Roof broken in."

*House #14-15 (34-33):* Considered one house. Roof, exterior wall and rear interior wall rebuilt. Routledge: "Good."

*House #16 (32):* Exterior, interior walls, roof and entrance rebuilt. Routledge: "Roof and sides fallen in."

*House #17-18 (31-30):* Considered one house. Exterior wall and entrance rebuilt. Routledge: "Most of roof and portion of north wall gone."

*House #20 (28):* Interior, exterior walls and roof rebuilt. Routledge: "Most of roof and portion of north wall gone."

*House #21 (27):* Exterior wall rebuilt. Routledge: "Perfect."

*House #22 (26):* Interior, no restoration required. Exterior of entrance and northwest part of wall rebuilt. Routledge: "Good."

*House #23 (25):* Roof, interior, exterior walls and both entrances rebuilt. Routledge: "Middle portion of roof missing, both entrances blocked."

*House #24 (24):* Roof, exterior walls and entrance rebuilt. Routledge: "The two ends are in fair preservation; the middle portions of the north wall have fallen."

*House #25:* Partial remains of a vertical stone foundation for



an elliptical thatched canoe shaped house. Routledge does not mention this foundation.

House #26 (23): Roof and interior in excellent condition. Hole in roof reported by Routledge not present. To realign two tipping foundation slabs on the interior wall the ceiling was removed and restored. Exterior walls and entrance were rebuilt. Routledge: "Very good, small hole in roof."

House #27 (22): The whole roof, front and back exterior walls and both entrances were restored. Interior walls in excellent condition. Routledge: "Perfect."

House #28 (21): Roof, interior, exterior walls and exterior entrance rebuilt. Routledge: "Quarter of roof gone, entrance blocked, and whole tottering."

House #29 (20): Roof, interior and exterior walls rebuilt. Routledge: "Roof fallen in."

House #30: Sub floor put under house 29 (20). Routledge: not recorded.

House #31 (29): House remained in excellent condition, no restoration required. Routledge: "Practically perfect."

House #32 (19a): Behind house 31 (19), unsuited for visitor access, house closed. Routledge: "Roof and sides fallen."

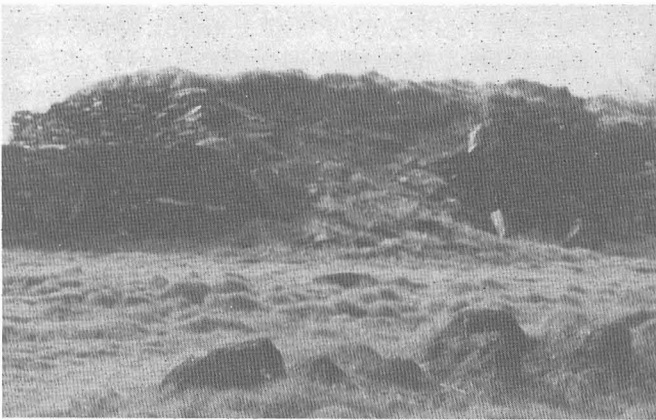


Figure 4: A recent photograph of a collapsed house at Orongo.  
(Photo: Georgia Lee).

*Editor's Note:*

At the present time, the condition of Orongo's houses and petroglyphs ranges from fair to destroyed. In 1993, nine or ten houses were reported as having collapsed, some due to heavy rains (Anon 1994). (Fig. 4)

Although hard to prove, it is likely that some collapsed due to excessive weight as a direct result of the Hollywood movie made on the island in that year. During filming, some 275 people were at Orongo for nearly two months. Equipment, supplies, and general pressure on the houses and petroglyphs surely had an impact. Three huge plastic *moai* (facing out to sea) were placed above the houses and an addition was constructed on the cliff. People wearing shoes were observed walking on the roofs of the houses and on the petroglyphs. Allen (1993) reports: "Using conservative numbers, if one estimates that 200 people made the trip to and from the set twice daily, for 25 days, that is the equivalent of 20,000 people--perhaps a greater number than have visited the site over the last century. Again, this figure

is estimated for the filming alone, and does not include the workers, machinery, and the crane (necessary to raise the plastic *moai*) required for the construction. With this amount of traffic, there was bound to be damage. One of the oval slab houses at the site collapsed during the production...." And, "...not all the production crew and visitors shared a respect for the archaeological features at the site....There were no signs, fences or indications of what areas were to be avoided. One local...complained of seeing crew members sitting on the edge of one of the slab houses."

Whether or not the activities and traffic due to the making of the movie caused additional damage to an already fragile site is a moot point. Damage has been done, and it is continuing. The houses are unstable and must be repaired and reinforced before they become lumps of jumbled stone and dirt. Some conservation methods must be applied to the petroglyphs if they are to survive. The petroglyphs are on basalt boulders and yet foot traffic has caused the designs to wear down to the point where some of the motifs are no longer clear. Although rock is considered sturdy and durable, constant friction will wear it down. Despite this, there are no safeguards in place to prevent further damage.

In February of 1994 two large cruise ships arrived to Easter Island. Some 400 to 500 passengers and crew disembarked (from each ship) for a fast trip to see the island. Time is short for these visitors but they are taken to Orongo, the quarry at Rano Raraku, and Anakena. At Orongo, the available space for seeing the site is limited and groups are kept small. However small the individual groups, the numbers still add up to 400-500 people walking through the site in one day. Multiply this number by all the other ships coming to the island during any given year, and it is clear that conservation practices must be put in place.

One other problem should be pointed out: the petroglyph boulders are in danger of being dislodged.

Should this happen, they will surely fall from the cliff onto the rocks far below. At one time in the past a retaining wall existed but erosion has erased most traces. As erosion proceeds, the boulders continue to be undermined. Mulloy (1975:9) already was aware of this potential when he wrote: "Evidence appeared that a considerably wider terrace was originally present, retained by a masonry wall of which a few stones remained.... This should be done, however, especially because the remaining narrow ledge is attractive to visitors and highly dangerous. The task must be approached with supreme care for the original retaining wall rose from the almost vertical face of the 300 meter cliff. The restoration must be keyed deeply into the decomposed cliff face...."

Mulloy (ibid.:19-20) correctly predicted that Orongo would become one of the best known sites on the island and one of the most intensively visited. He also noted that it is perhaps the most delicate of the local monuments--and expressed concern that special measures be taken in order to protect it. Twenty years have gone by since Mulloy worked at Orongo. Today we appear to be no closer to solutions:

problems of erosion and weathering are unresolved, and there is no active conservation and preservation plan in view.

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## NEWS AND NOTES

### What's New in Polynesia

#### Hawai'i.

★ The Sierra Club Legal Defense Fund has filed suit in state court to stop a developer from building a massive, \$18 million water pipeline that would facilitate a development explosion on tiny Moloka'i island. The developer plans to build four hotels, three golf courses, and at least 600 luxury homes onto an already existing resort. To acquire the necessary amount of water, the developer started construction on a pipeline that could drain as much as 20 million gallons a day from Moloka'i's sole aquifer. However, the aquifer's estimated sustainable yield is only seven million gallons a day. The State Board of Land and Natural Resources granted approval to build a vital segment of the project on state land—a violation of the Hawai'i Environmental Policy Act. Worse, the developer bulldozed the entire nine miles knowing that

the environmental review process was incomplete. The court has issued a preliminary injunction; a final ruling is awaited.

In 1990 the Sierra Club Legal Defense attorneys won a case against Brigham Young University and Zions Securities Corporation for polluting a nearby wetland, causing health problems and interfering with taro farming. The defendants agreed to upgrade the sewage treatment plant, restore the wetland and contribute \$2.25 million to a new non-profit foundation dedicated to native Hawaiian and environmental issues. [From *In Brief*: Sierra Club Legal Defense Fund Newsletter, 1994].

★ With chants and drums and the sound of conch shell horns, Hawai'i welcomed the return of Kaho'olawe Island from the U.S. Navy. Kaho'olawe is a 45 square mile island only 8 miles off the coast of Maui, used for target practice by the US Navy for 50 years. The Navy has pledged to restore the island, remove unexploded ordinance and other debris; Congress has authorized \$400 million over 10 years for the clean-up. The island will remain restricted due to danger from live ordinance; access is allowed only with authorization and guides are required. At Palauea Beach, Maui, a huge crowd turned out for the ceremony and official transfer of documents. This was followed with prayers, chants, and a hula performance. Many Hawaiians see this as a step toward sovereignty.

★ Kaho'olawe is again in the news: as a result of a survey and documentation project on that island's petroglyph sites, 13 petroglyphs have been dated by a process called accelerator mass spectrometry. The project was funded by the Kaho'olawe Island Reconveyance Commission; the petroglyph study was done by Edward Stasack and Georgia Lee; the dating was under the direction of Dr. Ronald Dorn. The earliest date, from a stick figure at Hakioawa, is AD 983; most of the 13 dates fall around 1230-1320. The latest date is 1660±10. Thus all of those tested are prehistoric. These are the first petroglyphs from Hawai'i to be dated by this or any other scientific method. We hope to have an in-depth report on Kaho'olawe's petroglyphs in a future issue of *RNJ*.

**Pitcairn.** *The Pitcairn Miscellany* reports that a new stamp series is now available, featuring six species of lizards from Henderson Island. Planned issues for 1994 include sea anemones/corals, and shipwrecks. All stamp sales and First Day Covers are handled by the Pitcairn Islands Administration, % British Consulate General, Private Bag 92014, Auckland, NZ.

Other news from Pitcairn reports that only 40 inhabitants are currently living on the island and supply ship service has been restricted to three ships per year.

**Nauru.** Rehabilitation work on the island's mined out areas is in the planning stages. Australia and Nauru reached a settlement, with Nauru being granted A \$107 million to carry out rehabilitation of areas devastated by phosphate mining during the years prior to independence. A team of experts has